# MONTANA FISH AND GAME DEPARTMENT FISHERIES DIVISION HELENA, MONTANA

# JOB COMPLETION REPORT RESEARCH PROJECT SEGMENT

State of Montana	Name Fishery Investigation Laboratory
Project No. F-23-R-7	Title Age and Growth Studies and
	Analysis of Bottom Samples
Job No. I & II	in Connection with Pollution
	Studies
Period Covered July 1, 1963 to June 30,	1964

# Abstract:

Over 6,000 scales were processed in the laboratory during the report period. Age and growth information from 21 individual waters are included in this report. No benthos work was done during the year.

# Recommendations:

It is recommended that this project be terminated as a Federal Aid project. However, the compilation of statewide age and growth fish statistics will be supported under a state project.

#### Objectives:

In formulating a sound fisheries management program it is necessary to know the growth rates and age composition of fish populations throughout the state. This laboratory provides facilities for processing scale samples; determining age and growth rates from the scales; and maintaining files for the age and growth information. Periodically, the laboratory will compile an up-to-date summary of all the age and growth statistics so that management personnel will have a historical perspective to make biological judgements.

## Techniques and Findings:

During 1963-64, 6,287 scales were received and mounted in the laboratory. The information from the scale envelopes was tabulated on data sheets. The mounted scales and data sheets were sent to the biologist who made the collection. After the scales are aged and calculated total lengths shown for each annulus, this information is returned to the laboratory age and growth file.

Lengths at each annulus were calculated with a nomograph, assuming a straight line relationship with the intercept at zero. Table 1 describes the mean calculated total length in inches at each annulus by species from each water within a major drainage. The code number is shown below each river or lake name.

TABLE I Age and growth of Montana fish. Average calculated total length, in inches are shown for each annulus. The number of fish is indicated by the number in parenthesis

### SALMONIDE

	Mounta	ain Whit	efi <b>s</b> h,	Proson	oium wi	lliams	soni				
MADISON DRAINAGE (Lakes)	Year Collected	I	II	111	IV	V	VI	VII	VIII	IX	Х
Cliff Lake 13-7360	1963	4.2 (4)	7.1 (4)	8.9 (1)							
MISSOURI DRAINAGE (Streams)											
Prickly Pear Creek 17-6016-1	1962	3.6 (6)	6.5 (5)	9.5 (5)	11.0 (3)	13.5	15.1 (1)				
Prickly Pear Creek 17-6016-1	1963	3.4 (6)	7.3 (5)	10.0 (4)	11.6	12:3	12.9	14.1 (1)	14.9		
		Golden	Trout,	Salmo	aquabo	nita					
MADISON DRAINAGE (Lakes)											
Blue Paradis Lake	e 1963	2.5 (3)	6.0 (3)	10.2	13.6 (1)						

13-7020

Cutthroat	Trout,	Salmo	clarki

	Year Collected	I	II	III	īv	v	VI	VII	VIII	IX	Х
BEAVERHEAD DRAINAGE (Lakes)											
Elk Lake 1-8720-3	1963		6.2		14.2 (1)	16.8 (1)	18.9 (1)				
MADISON DRA											
Lake Camero 13-7160-			6.8 (19)	9.4 (19)							
Finger Lake 13-7620-		3.5 (10)		10.4							
		Rainbow	Trout	, <u>Salm</u>	o gaird	lneri					
BEAVERHEAD DRAINAGE (Streams	;)										
Blacktail Creek 1-720-1	1963		6.6 (20)	9.9 (13)							
Red Rock Ri 1-6140-1	ver 1963	3.3 (10)		13.4 (6)	17.0 (1)						
Horse Prair Creek 1-350		2.7 (11)		9.9 (1)							
BIG HOLE DRAINAGE (Lakes)											, '
Browne's Lat 2-7525-3	ke 1963		7.1 (10)	9.2 (5)							
GALLATIN DRA	AINAGE eams)										
Spring Creel 9-5700-1	k 1962	3.2 (52)		11.4							
Jackson Cree (Rocky Creek 9-2622-1		3.2 (46)		9.7 (2)							

# Rainbow Trout, Salmo gairdneri

	Year Collected	I	II	111	IV	V	VI	VII	VIII	IX	Х	i
MADISON DRAINAGE (Ĺakes)												
Blue Paradi Lake	se 1963	2.6	5.5	7.4	10.1		15.1	17.6				
13-7020		(6)	(6)	(4)	(4)	(4)	(4)	(2)				
Cliff Lake (wild) 13-7360-	1963	2.7 (10)	6.7 (10)	9.7 (9)								
Cliff Lake (Hatch.) 13-7360-	1963	6.7 (4)	9.6 (4)									
Craig Lake 13-7500-	1963	3.4 (22)	6.0 (20)	8.5 (12)	10.4 (4)							
Large Echo Lake 13-7820-	1963	3.9 (4)	6.7 (3)	8.8	10.5	11.6						
Small Echo Lake 13-8420-	1963	3.3 (32)	6.5 (30)	8.7 (21)	10.0 (13)	11.3						
MISSOURI DE	RAINAGE eams)											
Prickly Pea Creek 17-6016-1	ar 1962		5.5 )(35)	8.5 (4)	12.7 (2)							
Prickly Pea Creek 17-6016-1	ar 1963	2.8 (82)	6.5 (26)	9.1 (7)	11.7 (3)							
BEAVERHEAD	DRAINAGE Streams)	Brown	Trout	, <u>Salmo</u>	trutt	<u>:a</u>						
Beaverhead River 1-500-1	1963		10.0 (48)	13.1 (20)	14.9 (5)							
Grasshoppe Creek 1-3100-1	r 1963		8.9 (27)	12.2	13.1	15.4 (1)						

Brown	Trout,	Salmo	trutta

Year Collected	I	II	III	IV	V	VI	VII	VIII	IX	Х
GALLATIN DRAINAGE (Streams)					•					
Spring Creek 1962 9-5700-1		10.6 (49)	13.3 (24)	15.9 (6)						
MISSOURI DRAINAGE (Streams)										
Prickly Pear 1962 Creek 17-6016-1	3.0 (81)	7.1 (34)	11.7 (18)	14.6 (7)	16.5 (5)					
Prickly Pear 1963 Creek 17-6016-1	3.1 (94)	7.7 (42)	11.3 (16)	13.4 (12)						
YELLOWSTONE DRAINAGE (Streams)										
Sheilds River 1963 22-5362-1	2.7 (46)			13.4 (7)	14.4 (3)					
Bro	ook Trou	t, <u>Sa</u>	lvelinu	s fonti	nalis					
BEAVERHEAD DRAINAGE (Lake)										
Lower Branham 1963 Lake 1-8540-3	2.8 (25)		8.5 (2)							
Reservoir Lake 1963 1-9380-5	3.6 (24)		8.4 (2)							
Upper Branham 1963 Lake 1-8540-3	3.1 (13)		8.4 (5)	9.6 (2)						
GALLATIN DRAINAGE (Streams)	i									
Spring Creek 1963 9-5700-1	4.0 7 (65) (									
BIG HOLE DRAINAGE (Lakes)										
Browne's Lake 1963	2.8 5		7.6							

Lake	Trout	Salvelinus	namaycush.	 continued

	Year Collected	T.	11	III	VI	V	VI	VII	VIII	IX	X
BE AVERHE AD	DRAINAGE (Lakes)										
E1k Lake 1-8720-3	1963	2.5 (3)	4.8 (3)	7.3 (1)	10.7 (1)						
			CATO	STOMIDA	E						
	Long	nose Su	cker,	Catosto	mus ca	tostom	ius				
BEAVERHEAD	DRAINAGE (Streams)										
Grasshopper Creek 1-3100-1	1963		4.2 (52)	6.4 (24)	8.5 (8)	11.3 (5)	13.2				
MISSOURI DE	RAINAGE (Streams)										
Prickly Pea Creek 17-6016-1	ar 1962		4.t (44)	6,9 (16)	10.3 (5)	13.6 (2)					
Prickly Pea Creek 17-6016-1	ar 1963		3.3 (35)	5.5 (20)	8.1 (15)		13.3 (10)	14.8 (9)	15.6 (5)	16.7 (3)	17.1
	Whi	te Suck	er, <u>C</u> a	tostomu	s comm	ersoni	<u>-</u> .				
BEAVERHEAD	DRAINAGE (Streams)										
Grasshopper Creek 1-3100-1	1963		5.0 (26)	7.5 (14)	10.0 (10)	11.2 (4)	12.4 (3)				
MISSOURI DE	RAINAGE Streams)										
Prickly Pea Creek 17-6016-1	ar 1962	1.1 (14)	2.7 (10)	4.9 (8)	8.1 (6)	10.1	11.5 (3)	12.9	13.5	14.9 (1)	15.5 (1)
Prickly Pea Creek 17-6016-1	ar 1963	1.0 (6)	3.0 (4)	6.2 (1)							